



JC02 Rec'd PCT/PTO 24 MAR 2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of)
)
HESSE et al.)
)
Serial No. 10/516,923)
)
Filing or 371(c) Date: December 7, 2004)
)
For: PROCESS FOR PREPARING BUTANEDIOL BY COMBINED GAS PHASE
AND LIQUID PHASE SYNTHESIS

Honorable Commissioner for Patents
Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT

This subject Information Disclosure Statement is submitted in connection with applicants' continuing duty of disclosure under 37 CFR 1.56.

Listing of Relevant Documents

The relevant documents are listed in the attached Form PTO-1449. Where a document is not available in the English language, an English language equivalent, an abstract and/or a reference to the portion of the present specification is included. US 6,008,384 and US 5,196,602 were cited in the International Search Report. A translation of the International Preliminary Examination Report is also enclosed.

Respectfully submitted,
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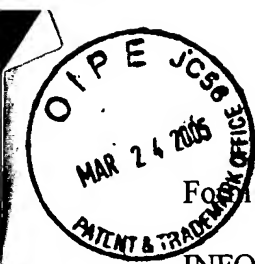
Form PTO-1449

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Use several sheets if necessary)
Sheet 1 of 4

Application Number 10/516,923
Filing Date December 7, 2004
Inventor HESSE et al.
Art Unit
Examiner
Attorney Docket No. 53621

U.S. PATENT DOCUMENTS				
Init.	Document Number	Date	Name	Class/Subclass
	3,925,352	12/1975	Bojarska-Dahlig et al.	
	3,967,057	06/1976	Tsukamoto et al.	
	4,268,695	05/1981	Lange et al.	
	4,301,077	11/1981	Pesa et al.	
	4,652,685	03/1987	Cawse et al.	
	4,797,382	01/1989	De Thomas et al.	
	4,885,411	12/1989	De Thomas et al.	
	4,940,805	07/1990	Fischer et al.	
	4,965,378	10/1990	Budge et al.	
	5,030,773	07/1991	Johnson et al.	
	5,072,009	12/1991	Budge et al.	
	5,122,495	06/1992	Taylor et al.	
	5,149,836	09/1992	De Thomas et al.	
	5,196,602	03/1993	Budge et al.	
	5,395,990	03/1995	Scarlett	
	5,406,004	04/1995	Eastland et al.	
	5,536,849	07/1996	Bergfeld et al.	
	6,008,375	12/1999	Bergfeld et al.	
	6,008,384	12/1999	Bockrath et al.	
	6,075,153	06/2000	Bergfeld et al.	
	6,297,389	10/2001	Castiglioni et al.	
EXAMINER DATE CONSIDERED				
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.				

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Sheet 2 of 4

Application Number 10/516,923
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Art Unit
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FOREIGN PATENT DOCUMENTS

Init.	Document Number	Date	Country	English equivalent /abstract/explanation
	0 322 140 ✓	06/1989	Europe	
	0 404 408 ✓	12/1990	Europe	
	WO 99/38856 ✓	08/1999	PCT	
	0 638 565 ✓	02/1995	Europe	US 5,536,849; spec. p. 2, l. 34-36
	1 168 220 ✓	10/1969	Great Britain	
	2 404 493 ✓	08/1974	Germany	US 3,967,057; spec. p. 3, l. 10-13
	WO 91/16132 ✓	01/1991	PCT	
	WO 95/22539 ✓	08/1995	PCT	
	WO 99/35136 ✓	07/1999	PCT	
	WO 97/24346 ✓	07/1997	PCT	US 6,008,375 + US 6,075,153; spec. p. 3; l. 31-32
	1 277 233 ✓	09/1968	Germany	GB 1 059 598; spec. p. 4, l. 1-3
	1 059 598 ✓	02/1967	Great Britain	
	1 230 276 ✓	04/1971	Great Britain	
	2 231 986 ✓	01/1974	Germany	GB 1 344 557; spec. p. 4, l. 8-10
	1 344 557 ✓	01/1974	Great Britain	
	2 501 499 ✓	07/1976	Germany	GB 1 512 499; spec. p. 4, l. 12-15
	1 512 751 ✓	06/1978	Great Britain	
	1-121228 ✓	05/1989	Japan	Patent Abstracts of Japan.; spec. p. 4, l. 17-18
	49-24906 ✓	03/1974	Japan	Dashunin et al.; spec. p. 4, l. 20-22
	49-87610 ✓	08/1974	Japan	Dashunin et al.; spec. p. 4, l. 20-22
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	WO 99/35113 ✓	07/1999	PCT	
	WO 99/35114 ✓	07/1999	PCT	

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Sheet 3 of 4

Application Number 10/516,923
Filing Date December 7, 2004
Inventor HESSE et al.
Art Unit
Examiner
Attorney Docket No. 53621

FOREIGN PATENT DOCUMENTS				
Init.	Document Number	Date	Country	English equivalent or abstract
	WO 99/52845 ✓	10/1999	PCT	
	0 382 050 ✓	08/1990	Europe	
	2 845 905 ✓	04/1980	Germany	US 4,268,695; spec. p. 6, l. 7-9
	0 373 947 ✓	06/1990	Europe	
	1 113 831 ✓	06/1994	China	DW 97-416221; spec. p. 6, l. 17-19
	1 116 615 ✓	08/1994	China	DW 97-449307; spec. p. 6, l. 17-19
	1 138 018 ✓	06/1995	China	DW 98-052938; spec. p. 6, l. 17-19
	1 047 328 ✓	07/1990	China	DW 91-230631; spec. p. 6, l. 17-19
	1 137 944 ✓	06/1995	China	DW 98-052915; spec. p. 6, l. 17-19
	1 182 639 ✓	11/1996	China	DW 2002-406026; spec. p. 6, l. 21-22
	1 182 732 ✓	11/1996	China	DW 2002-548770; spec. p. 6, l. 24-26
	2 455 617 ✓	05/1976	Germany	US 3,925,352; spec. p. 6, l. 31-34
	3 726 510 ✓	02/1989	Germany	US 4,940,805; spec. p. 7, l. 6-7
	2-025434	01/1990	Japan	Patent Abstracts of Japan; spec. p. 7, l. 9-11
	0 373 946 ✓	06/1990	Europe	
	2-233627 ✓	09/1990	Japan	Patent Abstracts of Japan; spec. p. 7, l. 16-20
	2-233630 ✓	09/1990	Japan	Patent Abstracts of Japan; spec. p. 7, l. 16-20
	2-233631 ✓	09/1990	Japan	Patent Abstracts of Japan; spec. p. 7, l. 16-20
	2-233632 ✓	09/1990	Japan	Patent Abstracts of Japan; spec. p. 7, l. 22
	0 431 923 ✓	06/1991	Europe	
	WO 97/43234 ✓	11/1997	PCT	
	WO 99/35139 ✓	07/1999	PCT	
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Sheet 4 of 4

Application Number 10/516,923

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Inventor HESSE et al.

Art Unit

Examiner

Attorney Docket No. 53621

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Init.

MESSORI et al., "Reaction Pathway in Vapour Phase Hydrogenation of Maleic Anhydride and Its Esters to γ -Butyrolactone" (June 1994), *Journal of Catalysis*, Vol. 150, pp. 177-185.

DASHUNIN et al., "Substituted Lactones and Their Transformations, VI. Preparation of 1- and 2-Alkyl-1,4-Butanediols from α - and γ -Substituted Butyrolactones" (June 1965), *Zhurnal Organicheskoi Khimii*, Vol 1, No. 6, pp. 996-1000.

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